

Logic Examples I

Problem 1. Is the following reasoning for finding the solutions of the equation $\sqrt{2x^2 - 1} = x$ correct?

- (1) $\sqrt{2x^2 - 1} = x$: Given
- (2) $2x^2 - 1 = x^2$: Square both sides
- (3) $X^2 = 1$
- (4) So, $x = 1$ or $x = -1$.

Problem 2. A, B, C are three persons, one of whom is a knight, one a knave, and one a spy.

The knight always tells the truth, the knave always lies, and the spy can either lie or tell the truth.

A says: "C is a knave"

B says: "A is a knight"

C says: "I am the spy".

Who is the knight, who is the knave, and who is the spy? Explain.